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MINISTRY OF
AGRICULTURE, FISHERIES AND FOOD



**FOOD STANDARDS COMMITTEE
REPORT ON SOUPS**

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FOOD STANDARDS COMMITTEE

The terms of reference of the Food Standards Committee are:

To advise the Secretary of State for Scotland, the Minister of Agriculture, Fisheries and Food, the Minister of Health and, as respects Northern Ireland, the Secretary of State for the Home Department, on the composition, description, labelling and advertising of food with particular reference to the exercise of powers conferred on Ministers by Sections 4, 5 and 7 of the Food and Drugs Act, 1955, and the corresponding provisions in enactments relating to Scotland and Northern Ireland.

The members of the Food Standards Committee at the time of the completion of this report were:

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FOOD STANDARDS COMMITTEE

REPORT ON SOUPS

Terms of Reference

1. We were asked to advise:

- (a) whether the establishment of statutory standards of composition for canned and powdered soups¹ is desirable in the interests of consumers;
- (b) what would be the appropriate standard for each type of canned or powdered soup which it is considered necessary to bring under control;
- (c) the extent to which the standards recommended could be enforced.

The Present Position

2. There are no statutory compositional standards for soups, although there is a Code of Practice, negotiated between the then Ministry of Food and the manufacturers, which was published in February, 1949. The Code aimed at preserving the recognised characteristics of canned soups sold under established names at a time when the supply of raw materials was difficult. The Code is reproduced at Appendix I. Negotiations have been carried on between the Local Authorities' Joint Advisory Committee on Food Standards (L.A.J.A.C.) and the Food Manufacturers' Federation for a revised Code for Canned Soups and a new Code for Powdered Soups. When our Report on Food Labelling was published, which suggested that consideration be given in the near future to the subject of compositional standards for canned and powdered soups, these negotiations were discontinued, though we understand that agreement had been reached on the greater part of the Codes. A revised Code of Practice for Canned Soup was nevertheless adopted by the Canned Soup Section of the Food Manufacturers' Federation as a manufacturers' code and it has been in operation since 1st February, 1965. The Non-Liquid Soups Section of the Food Manufacturers' Federation had produced a Code but it has not been brought into operation. These two Codes are reproduced in Appendices II and III respectively.

3. We were told that there were a number of variants in the manufacturing processes for both canned and powdered soups. The raw materials for canned soups are usually sorted, cleaned and prepared, then partly cooked and made ready for canning; the soup is sterilised in the can and this also completes the cooking process, after which the can and its contents are cooled. The basic process for a powdered soup consists of sorting, cleaning and preparing such raw materials as vegetables and meat, a partial cooking (blanching) or complete cooking, where necessary, followed by drying to a level of moisture content to ensure a reasonable storage life, mixing the dried materials with other dry ingredients (skim milk powder, wheat flour, etc.) and packeting.

4. The increase in sales of canned and powdered soups in the United Kingdom since 1955 is illustrated by the production statistics supplied to us by the trade. Canned soup production rose from 129,200 tons in 1956 to 248,800 tons in 1962 and 285,700 tons in 1965. The figures for canned soups include condensed soups and all have been calculated on a ready-to-serve basis. Production of powdered soup increased from 6,133 tons in 1956 to 19,687 tons in 1965.

¹The term 'powdered soups' was used in our Report on Food Labelling (paragraph 174) and we have therefore used it in the first part of this Report. The soups are in fact dry soups, not all parts of which are powdered, and the trade use the terms 'soup powder', 'soup mix' and 'non-liquid' soups. In paragraph 16 we recommend the use of the term 'soup mix'.

The weights quoted for powdered soups are packet contents and, if it is assumed that the soup is made by about a tenfold dilution with water, the figures on a ready-to-serve basis would be 1956: 61,330 tons and 1965: 196,870 tons. About 60% of the production of powdered soups is sold to the catering trade, whereas the major part of the canned soup manufactured is used in the home. Imports of canned and powdered soup together, which fluctuate from year to year, only amount to about 3,500 tons annually. It is not possible to translate these figures into a 'ready-to-serve' basis. Imports are clearly insignificant compared to total U.K. production. As exports are also very small, the U.K. production figures given above are virtually the figures for U.K. consumption.

5. Production of soups is largely confined to a few firms. We were told that over 90% of canned soups are made by three firms, one of which is not a member of the Food Manufacturers' Federation, and that 10 firms make the remainder, some concentrating on 'specialist' soups such as turtle and lobster. Production of powdered soups is confined to 5 large and 10 small firms. Some firms, or associated groups of firms, make both canned and powdered soups.

6. We understand that the six most popular types of liquid soup, which between them account for over 80% of production, are: tomato, vegetable, chicken, oxtail, mushroom and Scotch broth.

The market for powdered soup is rather more diverse, but we have been told that the order of importance of such soups sold direct to the public is: minestrone and thick vegetable, oxtail, chicken noodle, mushroom, pea and tomato, and, to the catering trade: tomato, mushroom, minestrone, oxtail, asparagus and leek. In each case, the varieties mentioned account for more than 60% of the total sales.

The Need for Standards

7. The enforcement authorities have expressed to us their preference for statutory standards rather than a Code of Practice. They laid particular stress on the need for compositional requirements to apply to all products, whether imported or not, and the need to reinforce analytical control by inspection of factories and methods of manufacture. This method of enforcement is not normally employed in the absence of a statutory standard. They also thought that there were a few issues which were unlikely to be settled satisfactorily by means of negotiation for a Code of Practice.

8. The trade, on the other hand, considered that a Code of Practice was the best method of ensuring control and that the points outstanding with L.A.J.A.C. on the two draft Codes were limited and susceptible of solution had the negotiations been continued. In their view, soup was not now a major part of the diet and its appeal was as a stimulating opening of the meal rather than as a source of nutriment. The composition of soup did not therefore need to be controlled in order to safeguard the consumer's health or to prevent him from being deceived. Regulations would be very difficult to enforce and would not be capable of being amended as easily as Codes of Practice, if amendment should become necessary for technological or other reasons. In giving evidence to us, the manufacturers of powdered soups did, however, agree that there might be some value in Statutory regulations insofar as they would prevent the importation of sub-standard powdered soup from manufacturers who might not consider themselves bound by a Code of Practice agreed by manufacturers in membership of the Food Manufacturers' Federation.

9. We have carefully considered the question of analytical control. While recommendations concerning total fat content and the content of butter could be effectively enforced by analysis, this would not be the case with meat content. The question of analytical control of meat content was examined by a Working Party of the Committee whose report is included as Appendix IV. This report confirms the view that, with the techniques at present available for routine control, the presence of protein nitrogen from milk solids, flour and other sources, together with non-protein nitrogen from glutamic acid and hydrolysed protein, prevents an estimate of meat content being established by analysis alone with the accuracy required for enforcement. There are also difficulties arising from can to can variations. The contribution to the nitrogen figure from components other than meat could be estimated from the recipes of the soups, so that disclosure of the recipe would be essential to allow an analysis to be interpreted. Even so, where meat is present as a garnish, variation in meat content from can to can is difficult to avoid.

10. A draft directive of the European Economic Community provides for minimum creatinine content as a basis for estimating the usage of meat in the preparation of the soup. The draft deals with powdered soups and not canned soups and the minimum proposed in the draft appears to be much lower than the creatinine content of soups currently available in the United Kingdom. The specification of a minimum creatinine content is not suitable for canned soups because the creatinine is not entirely stable under the conditions used in canning. In addition other constituents can interfere with normal analytical procedures. A specification for meat content in powdered soups would still allow the analyst to make use of a creatinine figure if, in his view, it could be regarded as a reliable indication of the amount of meat from which it had originated. We have not, therefore, further considered the need to specify a minimum creatinine content.

11. It would be possible to include provisions for minimum protein and caloric contents for each type of soup. These could more readily be enforced by analysis than is possible for meat content and would ensure that certain types of soup had a basic nutritive content. To do this would, however, have an unduly restrictive effect on the ability of manufacturers to devise the best recipes. Moreover, such provisions would not be appropriate for soups since, in current conditions, they are not sold primarily for their nutritional significance.

12. It is commonly believed that soups are nourishing and many people have an exaggerated idea of the amount of nourishment that can be obtained from soup. Some purchases may be made—e.g. by the elderly—with this in mind. Figures for the caloric value of canned and powdered soups given in an article¹ in 1961 show that canned soups—apart from clear soups—normally contain between 110 and 275 Calories per 250 ml. portion and powdered soups between 50 and 160 Calories or about half the content of the corresponding canned soup. The usual British portion is about 130 ml., so that one portion of canned soup would contribute between 55 and 140 Calories or from about 2% to 5% of the daily requirement of calories. It would probably also contain a similar proportion of protein and other nutrients.

13. Soups play an important part in modern diets as appetizers; they have both psychological and physiological properties. The relative importance of the various factors that stimulate gastric juices is not established, but many nitrogen containing compounds extracted from various foods can stimulate

¹T. McLachlan, *Food Processing and Packaging*, May 1961 p. 168.

the secretory glands of the stomach. Most soups probably serve as a useful adjunct to digestion and the better their flavour and taste the more useful they are likely to be for this purpose.

14. Whatever the nutritional significance of soup, it is a product which is sold in large quantities and, in our view, the consumer has a right to an assurance that certain basic compositional requirements have been fulfilled. We think it essential to lay down in standards the most important criteria in each instance. For the reasons set out in paragraph 9 and in Appendix IV, enforcement of compositional standards for soups requires to be ensured by inspection of the process at the factory and of records. If this can only be done, because of the terms of the Food and Drugs Act, 1955, by making the 'manufacture', as well as the 'sale' of non-standard soups an offence, we consider that the offence should be so extended and *recommend* accordingly. The use of this method to assist enforcement is more likely to be exercised when the provisions are laid down in regulations than when they are contained in codes of practice. The provisions of a code are simply agreed to voluntarily by the parties to the code, although they may influence a court in its interpretation of the general sections of the Food and Drugs Act. Apart from this, there is no reason why the provisions of a code should be known, or adhered to, by firms which are not parties to it, whether they operate in the United Kingdom or only export to it.

15. We therefore *recommend* that basic compositional requirements for the most important soups be embodied in regulations. As regards other requirements in the existing or proposed Codes of Practice, we *recommend* that as soon as any regulations resulting from our report have been made, a revised Code of Practice for canned soups and a new Code for powdered soups should be drawn up by negotiation between L.A.J.A.C. and the manufacturers. These should come into operation at the same time as the regulations. Since all the matters which were in dispute between L.A.J.A.C. and the manufacturers are included in our recommendations for regulations, there should be little difficulty in securing agreement to Codes of Practice.

Differences Between Canned and Powdered Soups

16. We have already referred to the difference in caloric value between canned and powdered soups. There are also other differences and in particular the meat contents of certain similarly named canned and powdered soups differ widely. In paragraph 99 of our Report on Claims and Misleading Descriptions we recommended that dry food mixes should be described as 'X mix', 'X' being the name of the product that the mix will make with the addition of water. We *recommend* that this provision should be applied to powdered soups. We consider that the term 'soup mix' will distinguish these products from canned soups and that it is particularly necessary to do so because of unavoidable differences between the soup prepared from a soup mix and the corresponding variety of canned soup.

17. We think, however, that in principle standards should be the same on a ready-to-serve basis for a canned soup or a soup mix with the same designation. There should be only two exceptions to this rule: first, where the removal of a wide difference in composition is being made in stages and secondly, where equivalence is technically impossible at present.

Meat Soups

18. For canned soups we *recommend* that the meat content of any soup, the name of which implies the presence of meat, except clear soups, turtle soups, poultry and game soups, and meat and vegetable, poultry and vegetable and

game and vegetable soups, should be not less than 6%. This is the figure in the 1949 Ministry of Food Code and the F.M.F. Canned Soup Code and there seems no reason to increase it. We do not consider that there is any necessity to lay down standards for fish soups.

19. As far as soup mixes are concerned, we were told by the soup mix manufacturers that they had made comparative tests with soup mixes which produced soups with meat contents of up to 6% and had demonstrated to representatives of L.A.J.A.C. that soup mixes with a high meat content produced soups that were unsatisfactory. Since then, however, some of the problems which arose in the air drying of beef have been overcome and this makes it practicable to use up to 6% meat and to produce a soup that is, in certain respects, superior to soups of a lower meat content.

20. However, it would be a very radical step indeed to raise soup mixes from the present level of 2% meat to 6% in one step. While we consider the present level to be too low and are very doubtful if consumers realise the very marked difference between the meat content of canned and powdered soups, we think that it would be reasonable if the soup mix standard was set for the present at half that for canned soups, i.e. 3%. This would bring about a significant improvement in meat content. We *recommend* accordingly.

21. The provisions of the F.M.F. Canned Soup Code are acceptable as a basis for the standards for meat soups. We *recommend* that a meat soup sold under a specific name, e.g. beef soup, must contain not less than 6% by weight of the named meat except that:

- (i) a product described as 'oxtail soup' must contain not less than 1½% of oxtail (excluding bone) with a total meat content of not less than 6%;
- (ii) a product described as 'kidney soup' must contain not less than 6% of meat or permitted offal of which not less than two-thirds shall be kidney (excluding capsule).

It should be noted that, by changing the definition of oxtail to exclude bone, we are effectively recommending an increase in oxtail meat content.

22. Following the principles outlined in paragraphs 17 and 20 we *recommend* that corresponding provisions should be laid down for soup mixes as follows: if a soup mix is sold under the name of a specific type of meat, e.g. 'beef soup mix', it shall contain not less than 3% of the named meat except that:

- (i) a product described as 'oxtail soup mix' must contain not less than 1% of oxtail (excluding bone) with a total meat content of not less than 3%;
- (ii) a product described as 'kidney soup mix' must contain not less than 3% of meat or permitted offal of which not less than two-thirds shall be kidney (excluding capsule).

23. We consider that the definition of meat in the F.M.F. Code of Practice for Canned Soups would be satisfactory if the words "of any animal or any bird which is normally used for human consumption" were added. It is necessary to make this distinction between 'animal' and 'bird' because the Food and Drugs Act, 1955 defines 'animal' as not including bird or fish. The definition would read:

" 'meat' means raw, lean, boneless, edible flesh, of any animal or any bird, which is normally used for human consumption, containing not more than 10% of ether-extractable fat. Meat extracts, hydrolysed protein or yeast extract, are not equivalent to meat and shall not be reckoned as such.

Where an extract of meat is present and is described as 'meat extract', this shall be beef extract. Where any other extract of meat is used the animal origin of the meat shall be specified in the list of ingredients, e.g. mutton, whalemeat, etc."

For the purpose of soup mixes this definition would refer to the meat used in the preparation of the soup mix or its equivalent in dehydrated meat.

Poultry and Feathered Game Soups

24. We were told by the manufacturers that there were two methods of making canned chicken soup. In one method the eviscerated carcass was cooked and the flesh subsequently stripped; the flesh was then added to the soup. In the other method, meat was stripped from the carcass before it was cooked and only this was used in the soup. We were told that much of the flavour of chicken soups was derived from the fat and the extractives rather than from the flesh used. We were also told that the consumer liked to have discrete pieces of chicken in the soup.

25. The 1949 Code contained no special provisions for poultry or feathered game soups and the provisions relating to meat soups, which prescribed a meat content of 6%, therefore applied. When the revised Code was being drawn up, meat content in chicken soups was one of the matters on which L.A.J.A.C. and the manufacturers could not agree. This was due to an important difference in approach; L.A.J.A.C. considered it essential to lay down a minimum meat content of chicken in the can, as for meat soups, and suggested 3%, while the manufacturers wished to retain the provision that a minimum percentage (6%) of the raw eviscerated carcass should be used in the preparation of the soup. A meat content of 3% is approximately equivalent to 8% of the eviscerated carcass and the manufacturers could not accept this figure particularly as difficulties might be experienced in ensuring uniform filling of every can.

26. The can to can variations are referred to in the Report of the Working Party and the difficulties of uneven distribution could be met to some extent if a phrase was added in the regulations on the following lines:

"provided that it shall be sufficient compliance with this standard if the meat from an amount of raw, eviscerated, dressed carcass, was incorporated as an ingredient so that the amount of carcass used shall be not less than 'X' % by weight of the soup when prepared for consumption."

27. We do not think the consumers can be properly protected unless a minimum meat content is laid down. We have carefully considered what the meat content should be. On average the meat content is at present about 2% and some members of the Committee were of the opinion that this was adequate and that there was no justification for an increase. On the other hand the majority of the Committee considered that this was a case where there should be an increase in order to ensure a good minimum standard for this soup; we *recommend* therefore that the meat content should be 3% with the proviso referred to above operating at 8% of raw, eviscerated, carcass.

28. For poultry and feathered game soup mixes, the figure for meat content in the F.M.F. draft Soup Mix Code is 2% of which not less than 60% is lean meat. The application of the proposed definition of meat in paragraph 23 to these soups would mean a substantial increase in the meat content even if the figure of 2% was retained. Tests showed that raising the meat content still further produced a marked improvement in flavour and there are no difficulties of uneven distribution as for canned soups. We consider that there is no reason

why the standard for these particular soup mixes should not therefore be aligned with those for canned soups and we *recommend* that the minimum meat content for this type of soup should be 3%. Since, in soup mixes, there are no difficulties in ensuring an even distribution of meat, the proviso regarding the use of an amount of raw, eviscerated, dressed carcase is not necessary.

Clear Meat Soups and Broths

29. In view of their negligible nutritional importance and limited sale we see no need for clear meat soups to come within statutory regulations and we *recommend* accordingly. Nor do we recommend any statutory control for broth except for Scotch Broth which is a very different product.

30. The F.M.F. Canned Soup Code lays down that Scotch Broth shall contain not less than 6% meat including bone and fat, or 3% boned meat. The aim of this provision is to allow for the additional fat and bone that is customary when this soup is made of mutton though we understand that it is sometimes made with beef. There seems to be no reason why Scotch Broth should not be dealt with in the same way as other meat and vegetable soups. The only effect will be to increase the amount of meat required if fat meat is used.

Meat and Vegetable Soups

31. The F.M.F. Canned Soup Code provides that meat and vegetable soups must contain at least half the minimum meat content of the corresponding meat soup. We think that this is a reasonable provision and that it should apply equally to meat and vegetable soups described by named meat and vegetables or by a general term such as "meat and vegetables". We consider that a corresponding provision should be applied to soup mixes.

32. Bearing in mind the increases recommended in the standards for poultry and feathered game soups and soup mixes we *recommend* that the minimum meat contents for meat and vegetable soups and soup mixes should be:

- | | |
|-------------------------------------|-------|
| (i) meat and vegetable soup | — 3% |
| (ii) poultry and vegetable soup | — 1½% |
| (iii) meat and vegetable soup mix | — 1½% |
| (iv) poultry and vegetable soup mix | — 1½% |

provided that in the case of poultry and vegetable soup it shall be sufficient compliance with the standard if meat from an amount of raw, eviscerated, dressed carcase was incorporated as an ingredient in the preparation of the soup so that the amount of carcase used is not less than 4% by weight of the soup when prepared for consumption.

Cream Soups

33. In our Report on Claims and Misleading Descriptions we recommended that the use of the word 'cream' should be governed by the following general principle:

'when a name or designation of a product incorporates the name of a food, that food must ordinarily be present as an ingredient of the product in question. Furthermore it must be in significant quantity, and the purchaser will be misled if it is not present in an amount which, for one reason or another, the purchaser would expect. The amount will vary in different circumstances but in assessing the proportion of an ingredient which should be present the main criterion is not necessarily what is common commercial practice.'

34. We commented on this as follows in paragraph 96 of our Report:

'We think that in cases of long-established usage such as salad cream, ice-cream and confectionery cream and also where the context makes absolutely clear that the use of the word does not imply the presence of butterfat, the word 'cream' may be used. Otherwise, the use of the word 'cream', imitations such as 'kreme', 'kreem' and 'creme' and the word 'creamy' should be governed by the general principle. We do not, however, consider that it is objectionable to use the word 'creamed' in connection with a product which is, or has been, subjected to a process to obtain plasticity of texture due to air absorption or emulsification or to describe the mechanical action of mixing together an oil or a fat and water for the formation of a creamy emulsion, provided it is not itself wholly or mainly a dairy product.' We made it clear that this recommendation did not apply to canned or powdered soups.

35. During the negotiations between L.A.J.A.C. and the manufacturers, L.A.J.A.C. proposed that cream soups should contain a minimum of $3\frac{1}{2}\%$ butter fat and they considered that only butter fat should be used. The canned soup manufacturers did not agree because they contended that the use of butter fat alone gave a flavour which was objectionable.

36. The F.M.F. Code for Canned Soups contained three provisions:

- (i) a minimum of $2\frac{1}{2}\%$ by weight of butter fat, or
- (ii) at least $1\frac{1}{2}\%$ of butter fat out of a total fat content of 3% , or
- (iii) no butter fat or less than $1\frac{1}{2}\%$ butter fat and at least $3\frac{1}{2}\%$ total fat content.

We understand that this is in line with commercial practice for many years and that soups containing at least these minimal amounts of butter fat and total fat have been sold under the name 'cream of . . . '.

37. The provisions for soup mixes in the F.M.F. draft Code confined the expression 'cream of . . . ' and 'cream' to soups containing not less than $2\frac{1}{2}\%$ of butter fat and proposed the expression 'creamed' for soups with 3% fat of which $1\frac{1}{2}\%$ was butter fat or for soups which may include no butter fat but with $3\frac{1}{2}\%$ total fat. Until recently these were of little practical importance since it was not possible to use sufficient fat to comply with the provisions of the Code. New developments have made the addition of up to $3\frac{1}{2}\%$ vegetable fat possible though there seems no immediate prospect of the difficulties occasioned by the addition of butter fat being overcome. These difficulties arise largely from the onset of rancidity in the soup mix. The manufacturers have now revised their draft Soup Mix Code on this point to bring the provisions for cream soup mixes into line with the Canned Soups Code.

38. We think the question of whether the expression 'cream of . . . ' or 'cream' can be permitted for soups containing no butter fat at all must be decided on the basis of the answers to two questions:

Is it a long established and recognised use of the words which is not misleading? and, if not, does the context make absolutely clear that the use of the words do not imply the use of butter fat? We think the answer to both questions must be 'No'. Butter fat has been used for many years in soups and most well-known recipes provide for the addition of cream, milk, and/or butter to cream soups. The fact that some cream soups do contain butter makes it clear that the context cannot be regarded as implying the absence of butter fat. We recommend therefore, that both soups and soup mixes described as 'cream of . . . ' or 'cream' should be required to contain either:

- (i) not less than $2\frac{1}{2}\%$ by weight of butter fat; or
- (ii) 1% butter fat if the total fat content is not less than 3% ;

- (iii) We also *recommend* that soups described as 'creamed' may either comply with (i) or (ii) or may contain no butter fat, but in this instance they must have a total fat content of at least $3\frac{1}{2}\%$.

1% of butter would be equivalent to 6% to 7% of cream and we think this is sufficient to characterise the soup when used with other fat. This recommendation is, of course, somewhat less restrictive than the soup mix manufacturers were prepared to accept before the recent technological developments and the revision of their draft Code.

Vegetable Soups

39. There are many variations in manufacturing vegetable soups and soup mixes and we do not consider that it would be practicable or necessary to control vegetable soups in regulations, but they should be dealt with in the Codes of Practice which we have suggested in paragraph 11.

Tomato Soups

40. We consider that the minimum of 3% tomato solids in the F.M.F. Canned Soup Code is reasonable; this represents about 33% tomato juice in the soup. We received representations that the standard for soup mixes should be different for technical reasons. After relatively lengthy storage soup mixes containing high proportions of tomato solids are susceptible to browning reaction, loss of colour and development of flavour changes. These difficulties are not experienced at the level of 2% tomato solids and we are prepared therefore to accept for the present this figure for soup mixes. We therefore *recommend* that a product sold under the description 'tomato soup' must contain not less than 3% tomato solids, and that a 'tomato soup mix' must contain not less than 2% tomato solids.

Other Soups

41. We considered whether a standard was required for mushroom soup, but in view of the wide variation in the harvesting methods and the types of edible fungi used, we decided not to recommend statutory control. We do not consider that statutory provisions are required to control any other type of soups.

Labelling

42. We consider that the use of the term 'condensed' should be restricted to the product which requires dilution to at least double the original volume. Expressions such as 'double' and 'triple' when used as a prefix to the word 'condensed' could well be misleading. We *recommend* therefore that only the word 'condensed' unqualified should be permitted.

43. We think it essential that where dilution instructions are required they should be precise and appear clearly on the labels of soups and soup mixes. We *recommend* accordingly.

44. We *recommend* that the ingredients of canned soups and soup mixes should be declared.

Application of the Standards

45. We do not consider it necessary for the protection of the consumer for the standards to apply to soups and soup mixes sold to a caterer for the purpose of his catering business or to a manufacturer for the purpose of his manufacturing business. Such soups and soup mixes will not necessarily be sold direct to the consumer; they may be used as an ingredient in some other product made up by the caterer or manufacturer. Soups sold by the caterer or manufacturer direct to the consumer will, of course, be covered by the standards.

The caterer and the manufacturer can defend themselves against the unwitting purchase of products which do not comply with the standard by obtaining a warranty from their suppliers.

Enforcement

46. We have referred above (paragraphs 9-11) to the difficulties in the analytical enforcement of some of the standards we propose but we think that these will not be so severe as to make the standards unenforceable. If regulations are drafted so that Food and Drugs Authorities can supplement chemical analysis with inspection at the place of manufacture we consider that a combination of these two methods will give a reasonable measure of control.

Summary of Recommendations

47. (a) If necessary for enforcement purposes, the 'manufacture' as well as the 'sale' of non-standard soups should be made an offence. (Paragraph 14)
- (b) Basic compositional requirements for the most important soups should be embodied in regulations. (Paragraph 15)
- (c) When regulations have been made, revised Codes of Practice for both Canned Soups and Soup Mixes should be negotiated between L.A.J.A.C. and the Manufacturers to come into force at the same time as the regulations. (Paragraph 15)
- (d) The appropriate designation for Powdered Soup should be 'Soup Mix'. (Paragraph 16)
- (e) Meat Soups should have the following minimum percentages of meat:
- | | | | |
|--------------|---|----|----------------|
| Canned Soups | — | 6% | (Paragraph 19) |
| Soup Mixes | — | 3% | (Paragraph 20) |
- (f) Minimum meat contents of named meat soups should be 6% of the named meat; Oxtail or Kidney Soups should contain at least 6% total meat and not less than 1½% oxtail (excluding bone) or not less than two-thirds kidney (excluding capsule) respectively. (Paragraph 21)
- (g) The minimum meat content of named meat soup mixes should be 3%; Oxtail Soup Mix and Kidney Soup Mix should contain at least 3% total meat and not less than 1% of oxtail (excluding bone) or not less than two-thirds kidney (excluding capsule) respectively. (Paragraph 22)
- (h) The definition of 'meat' should be as recommended in paragraph 23. For soup mixes this should be the meat used in the preparation of the mix or its equivalent in dehydrated meat. (Paragraph 23)
- (i) The minimum meat content of Poultry and Game Soups should be 3%, with a proviso that it shall be sufficient compliance if the meat from an amount of raw, eviscerated, dressed carcase was incorporated as an ingredient so that the amount of carcase used shall be not less than 8% by weight of the soup when prepared for consumption. (Paragraph 27)
- (j) The minimum meat content of Poultry and Game Soup Mixes should be 3%. (Paragraph 28)
- (k) Regulations are not necessary for Clear Meat Soups or Broths, except for Scotch Broth. (Paragraph 29)

- (l) Meat and Vegetable Soups and Soup Mixes (including Scotch Broth) should have the following minimum meat contents:
- (i) Meat and Vegetable Soup — 3%
 - (ii) Poultry and Vegetable Soup — $1\frac{1}{2}\%$
 - (iii) Meat and Vegetable Soup Mix — $1\frac{1}{2}\%$
 - (iv) Poultry and Vegetable Soup Mix — $1\frac{1}{8}\%$
- provided that for Poultry and Vegetable Soup the proviso in paragraph 47 (i) shall apply with 4% substituted for 8%. (Paragraph 32)
- (m) Soups or soup mixes described as 'Cream of . . .' or 'Cream' should be required to contain either:
- (i) not less than $2\frac{1}{2}\%$ by weight of butter fat; or
 - (ii) 1% butter fat if the total fat content is not less than 3%.
- Soups described as 'Creamed' may either comply with (i) or (ii) above, or may contain no butter fat, but in this instance they must have at least $3\frac{1}{2}\%$ total fat content. (Paragraph 38)
- (n) Tomato Soup should contain not less than 3% tomato solids; Tomato Soup Mix should contain not less than 2% tomato solids. (Paragraph 40)
- (o) The term 'Condensed' should be restricted to products which require dilution to at least double the volume. Only the word 'Condensed' unqualified should be permitted. (Paragraph 42)
- (p) Unambiguous dilution instructions should appear on the labels of all soups and soup mixes. (Paragraph 43)
- (q) Ingredients of canned soups and soup mixes should be declared. (Paragraph 44)

CODE OF PRACTICE FOR CANNED SOUPS (PUBLISHED FEBRUARY 1949)

To secure that canned soups are not falsely described or sold under names which might mislead as to their nature, substance or quality, the Ministry of Food, in consultation with the Food Manufacturers' Federation, has prepared the following Code of Manufacturing and Labelling Practice.

The Code is not intended to represent normal practice in times of free supply, but it aims to preserve, so far as the present supply position of raw materials permits, the recognised characteristics of canned soups sold under established names. It is drawn up without prejudice to amendment as and when ingredients become more freely available.

In the absence of any reference to dilution on the label, the soup in the container must conform to any minimum quantity prescribed in the following specifications. If the label bears a reference to dilution, that reference must be specific and the relative minimum quantities must be increased proportionately in accordance with the dilution recommended.

1. Meat Soups

For the purpose of the definition of meat soups, 'meat' means raw, fat-free, boneless, edible flesh or the equivalent of dehydrated meat when reconstituted. Meat extract, hydrolysed protein or yeast extract are not equivalent to meat and may not be reckoned as such.

(a) *'Meat Soup'*

A product sold under this description, unqualified, should contain not less than 6% by weight of meat (excluding bone and fat).

Where dehydrated meat is used it may be disclosed in the statement of ingredients without the prefix 'dehydrated', and its position should be related to its reconstituted state. The reconstitution factor for converting dehydrated meat into its equivalent weight of raw meat is 2:5.

With regard to the use of whalemeat, it has been decided that existing descriptions may be retained provided not more than 50% of the minimum meat content consists of whalemeat. In the case of Oxtail Soup and Kidney Soup, the proportion of whalemeat must not exceed 50% of the meat content excluding offal; thus Oxtail Soup may contain 2% oxtail and half of the remaining 4% may be whalemeat. Where whalemeat is used it must be disclosed as such in the statement of ingredients.

(b) *'Meat Soup—Made with an Edible Extract'*

As a temporary concession, a product which contains not less than 1.5% by weight of meat (excluding bone and fat) and, in addition, an appropriate amount of edible extract, may be described as:

- 'Meat Soup — made with Meat Extract',
- 'Meat Soup — made with Hydrolysed Protein',
- 'Meat Soup — made with Yeast Extract',

as the case may be. Where more than one edible extract is used, the title should include the name of the predominating extract only.

(c) '*Oxtail Soup*'

A product sold under this description, unqualified, must contain not less than 2% by weight of whole oxtail including bone. The total content, however, of any kind of meat, (excluding bone and fat) must be not less than 6% by weight.

(d) '*Oxtail Soup—Made from Oxtail Extract*'

As a temporary concession, a product may be sold under this description if it contains not less than 1½% by weight of meat (excluding bone and fat) and, in addition, an appropriate amount of oxtail extract.

(e) '*Turtle Soup*'

A product sold under this description should contain not less than 6% by weight of turtle meat.

(f) '*Mock Turtle Soup*'

A product sold under this description should contain not less than 6% by weight of meat (excluding bone and fat).

(g) '*Mulligatawny Soup*'

A product sold under this description should have a meat content of a meat soup, i.e. not less than 6% by weight of meat (excluding bone and fat). It should be flavoured with curry and may be garnished with an appropriate cereal.

2. Cream Soups

A product described as cream soup should contain not less than 2% by weight of butter fat; but no exception will be taken to a product sold under this description:

- (a) which contains less than 2½% but not less than 1½% by weight of butter fat, if the total fat content is not less than 3%; or
- (b) which contains no butter fat or less than 1½% by weight of butter fat, if the total fat content is not less than 3½%.

3. Vegetable Soups

For the purpose of the definitions of vegetable soups, the term 'bulk weight' shall denote the weight of the fresh vegetable when prepared for use, i.e. peeled, trimmed, or shelled, as the case may be.

(a) '*Vegetable Soup*'

A product sold under this, or similar description e.g. '*Mixed Vegetable Soup*', '*Windsor Vegetable Soup*' should contain at least four different varieties of vegetable and no one variety should unduly predominate. Should the bulk weight of one vegetable be more than the sum of the bulk weight of the remaining vegetables, the descriptions of the soup should include the name of the predominant variety (e.g. '*Potato and Vegetable Soup*').

(b) '*Single-Named Vegetable Soups*, e.g. '*Celery Soup*', '*Tomato Soup*', '*Lentil Soup*'.

In a product sold under such a description the bulk weight of the named vegetable must exceed the sum of the bulk weights of the remaining vegetables (if any).

(c) '*Pea Soup*' and '*Green Pea Soup*'

The description '*Green Pea Soup*' implies a soup made from fresh green peas or from canned or frozen green peas. A soup made from processed or dried marrowfats and blues must be described as '*Pea Soup*' without any suggestion that fresh green peas have been used.

4. Clear Soups

For the purpose of the following definition, a clear soup is considered to be the thin clear liquid obtained by the suitable extraction of meat or by the dilution of an appropriate amount of meat extract or, in the case of clear vegetable soups, by the suitable extraction of selected vegetables.

(a) *Single-Named Meat Consommés*, e.g. '*Chicken Consommé*'

A product sold under one of these descriptions should be clear soup in the preparation of which the named meat, e.g. Chicken, has been the predominant single ingredient.

(b) '*Consommé*'

A product sold under this description should be a clear soup in the preparation of which meat (or an equivalent amount of meat extract) has been the predominant single ingredient.

(c) '*Julienne*'

A product sold under this description should be a suitably flavoured clear soup, in the preparation of which meat (or an equivalent amount of meat extract) has been the predominant single ingredient. It may contain not less than 3% and not more than 6% by weight of strip or diced vegetables.

(d) '*Clear Vegetable Soup*'

A clear vegetable soup may not be termed '*Consommé*' or '*Julienne*' and the word '*Vegetable*' must appear in the title.

5. Broths

A broth as canned shall contain meat or bone extractives, derived from meat, bones, meat extract or bone extract, used either singly or in any combination of two or more, in such proportion that the 'meat nitrogen' content shall be equivalent to not less than 1% by weight of 'protein' ($N \times 6.25$). The broth may contain optionally meat fibre, vegetables, farinaceous material, spices, herbs and suitable colourings and flavourings.

(a) *Single-Named Meat Broths*, e.g. '*Beef Broth*'

A product sold as '*Beef Broth*' should be a broth as defined above in the preparation of which only beef, beef extract or beef bones have been used as the meat ingredient. In the case of '*Chicken Broth*', however, 0.75% only need be in the form of chicken protein, the remaining 0.25% to be derived from other meats.

(b) '*Mulligatawny Broth*'

A product sold under this description should be a broth as defined above flavoured with curry, and may be garnished with an appropriate cereal.

(c) *Single-Named Vegetable Broths e.g. 'Tomato Broth'*

A product sold as "Tomato Broth" should be a broth as defined above and should contain at least 20% of tomatoes.

(Explanation: The figure for the meat nitrogen content, which is given in the definition of broth, relates not merely to the liquid part but to the complete product including solids. Thus the meat protein content of a 16oz. tin of broth, of which 12oz. is liquid and 4oz. solid, should be 1% of 16oz.)

6. Miscellaneous

(a) *'Brown Soup', 'Windsor Soup' and 'Eton Soup'*

A product sold under these descriptions should be a thick brown soup, the basis of which is a brown roux to which a broth as defined in paragraph 5 above has been added.

(b) *'Minestrone'*

A product sold under this description should contain appreciable amounts of strip or diced assorted vegetables and may or may not contain meat. A macaroni product (Macaroni, Spaghetti, Vermicelli) must be present.

(c) *'Scotch Broth'*

A product sold under this description should contain not less than 6% meat, including bone and fat, or 3% boned meat. The predominating proportion should in both cases be mutton. It should contain barley and an assortment of vegetables and should be thickened to a suitable consistency.

(d) *'Mushroom Soup'*

A product sold under this description should be a soup in which mushrooms are the predominant single ingredient.

FOOD MANUFACTURERS' FEDERATION INC.
CODE OF PRACTICE FOR CANNED SOUPS
 (Operative on and from 1st February, 1965)

To secure that canned soups are not falsely described or sold under names which might mislead as to their nature, substance and quality, the Food Manufacturers' Federation has agreed the following Code of Manufacturing and Labelling Practice for canned soups packed for retail sale. The Code shall not apply to catering packs in cans of A.2½ size or larger, provided that these are labelled 'Specially packed for catering purposes only', nor to dry soup mixes.

In the absence of any reference to dilution on the label, the soup in the container shall conform to any minimum quantity prescribed in the following specifications. If the label bears a reference to dilution, that reference shall be specific and the relative minimum quantities shall be increased proportionately in accordance with the dilution recommended.

When the description states or implies that the soup is condensed or concentrated, directions for dilution shall be given and these shall be specific.

For the purpose of this Code, other than in Clause 2, 'meat' means raw, lean, boneless edible flesh, containing not more than 10% of ether-extractable fat. Meat extracts, hydrolysed protein or yeast extract are not equivalent to meat and shall not be reckoned as such.

Where an extract of meat is present and is described as 'meat extract', this shall be beef extract. Where any other extract of meat is used the animal origin of the meat shall be specified in the list of ingredients, e.g. mutton, whalemeat, etc.

1. Meat Soups (excluding Clear Soups, Poultry and Game Soups)

(a) 'Meat Soup' (excluding Real Turtle Soups)

A product sold under this description unqualified, shall contain not less than 6% by weight of meat.

A meat soup sold under a specific name, e.g. 'Beef Soup', shall contain not less than 6% by weight of the named meat except in the case of oxtail soup or kidney soup mentioned below.

(b) 'Oxtail Soup'

Products sold under this description shall contain not less than 2% of oxtail (including bone). The total meat content shall be equivalent to not less than 6% by weight of meat.

(c) 'Mock Turtle Soup'

A product sold under this description shall contain not less than 6% by weight of meat.

(d) 'Kidney Soup'

A product sold under this description shall contain not less than 6% by weight of meat or permitted offal of which not less than two thirds shall be kidney (excluding capsule).

(e) 'Mulligatawny Soup'

A product sold under this description shall have a meat content of a meat soup, i.e. not less than 6% by weight of meat. It shall be flavoured with curry and may be garnished with an appropriate cereal.

In this variety of soup, the meat content may be replaced in whole or in part by poultry meat.

2. Poultry and Feathered Game Soups

In the preparation of a product sold under a specific name, e.g. 'Chicken Soup' not less than 6% of the raw, eviscerated, dressed carcasses should be used.

3. Cream Soups

A product described as 'Cream Soup' shall contain not less than 2½% by weight of butter fat; but no exception will be taken to a product sold under this description:

- (a) which contains less than 2½% but not less than 1½% by weight of butter fat if the total fat content is not less than 3%; or
- (b) which contains no butter fat or less than 1½% by weight of butter fat if the total fat content is not less than 3½%.

4. Vegetable Soups

The word 'weight' shall be taken to mean the weight of the vegetable prepared for use, i.e. peeled, trimmed or shelled, or the equivalent weight of dehydrated vegetables or (for tomatoes) of tomato purée. In the case of dehydrated vegetables being used, the weight refers to the equivalent in fresh vegetables. For tomato purée added as purée, the amount can be calculated back to fresh tomatoes for the purpose of a reference to weights in the following paragraphs (except in (d)).

(a) 'Vegetable Soup'

A product sold under this, or similar description, e.g. 'Mixed Vegetable Soup', 'Windsor Vegetable Soup', shall contain at least four different varieties of vegetable and no one variety should unduly predominate. Should the weight of one vegetable be more than 40% of the total weight of the vegetables, the descriptions of the soup shall include the name of the predominant variety (e.g. 'Potato and Vegetable Soup').

(b) *Single-Named Vegetable Soups (e.g. 'Celery Soup', 'Lentil Soup')*

In a product sold under such a description the weight of the named vegetable shall exceed the sum of the weights of the remaining vegetables (if any).

(c) 'Pea Soup' and 'Green Pea Soup'

The description 'Green Pea Soup' implies a soup made from fresh, canned, frozen or dehydrated green peas, but not from processed or harvest dried peas. Dehydrated green peas are peas which have been dehydrated from the same fresh state required for canning or freezing as green peas. A soup made from processed or harvest-dried marrowfats or blues, or pea flour, shall be described as 'Pea Soup' without any suggestion that fresh green peas have been used.

(d) 'Tomato Soup'

A product sold under this description shall contain not less than 3% tomato solids.

5. Clear Soups (excluding Real Turtle)

For the purpose of the following definition, a clear soup is considered to be the thin clear liquid obtained by the suitable extraction of meat, poultry or feathered game, or by the dilution of their extractives, or, in the case of clear vegetable soups, by the suitable extraction of selected vegetables.

(a) *Single-Named Meat Consommés (e.g. 'Beef Consommé')*

A product sold under one of these descriptions shall be a clear soup in the preparation of which the named meat, e.g. Beef, has been the predominant ingredient.

(b) *'Consommé'*

A product sold under this description shall be a clear soup in the preparation of which meat (or an equivalent amount of meat extractives) has been the predominant ingredient.

(c) *'Julienne'*

A product of this description shall be a suitably flavoured clear soup containing not less than 3% of strip or diced vegetables.

(d) *'Noodle'*

A product sold under this description shall be a clear soup as described above, garnished with noodles.

6. Broths

A broth as canned shall contain meat or bone extractives, derived from meat, bones, meat extractives or bone extract, used either singly or in any combination of two or more, in such proportion that the 'nitrogen' content shall be equivalent to not less than 1% by weight of 'meat protein' ($N. \times 6.25$). The broth may contain optionally meat fibre, vegetables, farinaceous material, spices, herbs and suitable colourings and flavourings.

Single-Named Meat Broths, e.g. 'Beef Broth'

A product sold as 'Beef Broth' shall be a broth as defined above in the preparation of which only beef, beef extractives, or beef bones have been used as the meat ingredient.

(Explanation: The figure for the nitrogen content, which is given in the definition of broth relates not merely to the liquid part but to the complete product including solids. Thus the protein content of a 16oz. tin of broth, of which 12 oz. is liquid and 4 oz. solids, shall be 1% of 16 oz.).

7. Miscellaneous Soups

(a) *'Minestrone'*

A product sold under this description shall contain appreciable amounts of strip or diced assorted vegetables and may or may not contain meat. A pasta product (Macaroni, Spaghetti, Vermicelli) shall be present.

(b) *'Scotch Broth'*

A product sold under this description shall contain not less than 6% by weight of meat, including bone and fat, or 3% boned meat. It shall contain barley and an assortment of vegetables.

(c) *'Meat/Poultry/Feathered Game and Vegetable Soups'*

A specifically named meat and vegetable soup (e.g. 'Beef and Vegetables'), shall contain not less than 3% of the named meat. In the case of poultry or feathered game and vegetable soups (e.g. 'Chicken and Mushroom Soup') there shall be the use of not less than 3% of raw, eviscerated, dressed carcasses of the named bird.

FOOD MANUFACTURERS' FEDERATION INC.

REVISED DRAFT

CODE OF PRACTICE FOR SOUP MIXES

To ensure that soup mixes and soup powders packed for retail sale are not falsely described or sold under names that might mislead as to their nature, substance or quality, the following Code of Manufacturing and Labelling Practice has been prepared. The Code shall not apply to:

- (a) Catering packs, provided that these are so labelled.
- (b) Bouillons not described as Soup Mixes.
- (c) Soup Powders, whether compressed or not, sold under a description in which the word 'flavour' appears immediately following, and as conspicuously as, the name of the variety. The description of such an article may denote an ingredient present primarily for flavouring purposes and in relatively small proportion (e.g. 'Celery Flavour') or absent altogether but whose flavour is simulated (e.g. 'Kidney Flavour').

All other dry mixes intended to produce soup after mixing with water shall be described by the generic term 'Soup Mix'. The description 'Soup' is not permissible.

All packs of soup mixes shall bear a statement of the dilution or dilutions recommended for use when water alone is the diluting fluid. References in this Code to the soup made from a soup mix are to be interpreted as referring to the product obtained when the mix is made up with water according to the maximum dilution prescribed on the label.

If a product is described as 'cream' soup mix or 'cream of —' soup mix, the soup made from it shall contain not less than $2\frac{1}{2}\%$ by weight of butter fat; but no exception will be taken to a product sold under this description:

- (a) which contains less than $2\frac{1}{2}\%$ but not less than $1\frac{1}{2}\%$ by weight of butter fat if the total fat content is not less than 3% ; or
- (b) which contains no butter fat or less than $1\frac{1}{2}\%$ by weight of butter fat if the total fat content is not less than $3\frac{1}{2}\%$.

Where an extract of meat is present the origin of the extract shall be specified, e.g. beef, mutton, whalemeat, etc.

The soup resulting from soup mix, when made up with water according to the maximum dilution prescribed on the label, shall conform to the following requirements.

1. Meat Soup Mixes (*excluding Poultry and Feathered Game*)

(a) General

For the purpose of the definition of meat soup mixes 'Meat' means raw, lean, boneless edible flesh (containing not more than 10% ether-extractable fat), or its equivalent of dehydrated meat when reconstituted.

Meat Soup Mixes which are specifically described shall produce a soup containing at least 2% of the named meat and of which the minimum total creatinine content shall be 45 mg. per pint derived from meat and/or meat extract.

(b) *'Clear Meat Soup Mix' (excluding 'Julienne Soup Mix')*

A clear meat soup mix shall produce a clear liquid obtained by the dilution of an amount of meat extract as appropriate, with or without garnish. The minimum total creatinine content in the case of a clear meat soup mix shall be 90 mg. per pint, derived from meat and/or meat extract.

(c) *'Meat Broth Mix' (excluding 'Scotch Broth')*

A meat broth mix shall produce an unclarified meat soup with or without garnish, the consistency of which is mainly liquid.

(d) *'Oxtail Soup Mix'*

A product of this description shall produce a meat soup with a total minimum meat content of 2% of which at least one-third shall be boneless lean oxtail meat.

2. Vegetable Soup Mixes

For the purpose of the definitions of vegetable soup mixes, 'vegetables' may include tomatoes and mushrooms but not herbs, and references to 'vegetable content' are to be interpreted as 'raw trimmed vegetables'.

(a) *'Vegetable Soup Mix'*

A product of this or similar description, e.g. 'Assorted Vegetable Soup Mix', 'Windsor Vegetable Soup Mix', shall contain at least four different varieties of vegetable and no one variety shall unduly predominate. If the weight of one vegetable be more than 40% of the total weight of vegetables, excluding cereal flours and edible starches for thickening purposes, the description of the soup mix shall include the name of the predominant variety (e.g. 'Potato and Vegetable Soup Mix').

(b) *Single-Named Vegetable Soup Mixes (excluding 'Tomato Soup Mix') (e.g. 'Celery Soup Mix', 'Lentil Soup Mix')*

In a product of such a description the weight of the named vegetable shall exceed the sum of the individual weights of the remaining vegetables, if any, excluding cereal flours and edible starches for thickening purposes.

If the description 'Green Pea Soup' is used, it shall contain dehydrated pea derived directly from green peas.

(c) *'Vegetable Broth Mix'*

A vegetable broth mix shall produce an unclarified vegetable soup, the consistency of which is mainly liquid.

(d) *'Clear Vegetable Soup Mix'*

A clear vegetable soup mix shall produce a clear liquid obtained by the dilution of an amount of vegetable extract, with or without garnish.

3. Poultry and Feathered Game Soup Mixes

(a) A product of specific description (e.g. 'Chicken Soup Mix') shall produce a soup containing not less than 2% of the appropriate meat and fat and of this not less than 60% shall be lean meat.

(b) *'Clear Poultry Soup Mix' (excluding Noodle Soup Mixes)*

A clear poultry soup mix shall produce a soup containing fat and extractives of meat derived from such an amount of whole dressed poultry that is not less than 2% of the finished soup.

4. Miscellaneous Soup Mixes (*Not covered in preceding paragraphs*)

(a) *'Minestrone Soup Mix'*

A product of this description shall contain strip or diced assorted vegetables and may or may not contain meat. A pasta product (Macaroni, Spaghetti, Vermicelli, etc.) shall be present.

(b) *'Chicken Noodle Soup Mix'*

A product of this description shall produce a clear soup in which the flavouring is primarily derived from chicken meat and chicken fat; it shall also contain noodles.

(c) *'Julienne Soup Mix'*

A product of this description shall produce a suitably flavoured clear soup containing not less than 3 % of strip or diced vegetables.

(d) *'Scotch Broth Mix'*

A product of this description shall produce a soup with a boned meat content of not less than 2 %. It shall contain barley and an assortment of vegetables.

REPORT OF THE WORKING PARTY ON SOUP ANALYSIS

1. The members of the Working Party were: Dr. H. Egan (Chairman), Mr. J. G. Baumgartner and Mr. R. W. Sutton.

2. We were asked by the Food Standards Committee to investigate the position disclosed by the results of the analysis of chicken soups for meat content provided in evidence by the Association of Public Analysts as compared with the minimum meat content of '6% of the raw, eviscerated, dressed carcass' (said by L.A.J.A.C. to be equivalent to about 2% of lean meat) recommended in the Manufacturers' Code of Practice.

3. We have accordingly discussed the extent to which analytical evidence can be applied in the estimation of the meat content of chicken soups; and have extended our considerations to meat soups in general. In addition to the papers available to the Food Standards Committee, we have considered a communication from Dr. E. C. Wood and recipe details and production protein analyses for chicken and meat soups provided by the Food Manufacturers' Federation.

Determination of Meat Content

4. The meat content of a meat product is normally determined by estimating separately its lean meat and fat content, subtracting, where appropriate, any fat above the maximum allowable as meat by rule or convention, and adding together the lean meat and fat figures which then remain.

5. The determination of fat content is normally a straightforward procedure based on solvent extraction of the fat, which is subsequently weighed. The estimation of lean meat content is based on a determination of the nitrogen content and this is complicated by the presence of substances other than lean meat which also contain nitrogen. In the case of soups, for which the meat content may be only of the order of 6% or (in the case of poultry soups) less (as compared with 50% or more in sausages, pastes, spreads, etc.), the total amount of nitrogen contributed by substances other than lean meat such as glutamic acid, wheat flour and yeast extract, may be equivalent to or even greater than that contributed by the lean meat content itself.

Lean Meat Content of Soups Compared with Total Nitrogen Content

6. The lean meat content of soups estimated by total nitrogen analysis may thus be considerably higher than the actual meat content. In the three typical recipes for chicken soups supplied to us the lean meat accounts for only 59%, 36% and 31% of the total nitrogen content; in three typical recipes for beef soups, the lean meat accounts in each case for about 60% of the total nitrogen content.

Recipe Figures Compared with Figures Obtained by Analysis—Chicken Soups

7. The above difficulties are more fully illustrated by Table 1.

Table 1 — Chicken Soups

	A %	B %	C %
Actual meat (a)	2.43	2.16	2.30
Nitrogen derived from actual meat	0.09	0.08	0.085
Nitrogen from other ingredients:			
non-fat milk solids	0.032	0.066	0.069
sodium glutamate	0.028	0.018	0.035
herbs, spices	0.001	trace	—
wheat flour	0.002	0.060	0.064
vegetable extract	—	—	0.023
Total non-meat recipe nitrogen	0.063	0.144	0.191
Total nitrogen from recipe	0.153	0.224	0.276
Proportion of nitrogen contributed by:			
lean meat	59.0	36.0	31.0
milk solids	21.0	29.0	25.0
other ingredients	20.0	35.0	44.0
Non-meat nitrogen calculated as raw			
lean meat	1.7	3.89	5.16
Apparent raw lean meat content:			
from total recipe nitrogen	4.1	6.1	7.5
from sample analysis (A.P.A.)	6.5	8.2	17.3
		7.8	18.6
		6.5	

(a) raw, lean, fat-free

The figures in the last three lines of Table 1 relate to raw lean meat calculated from total nitrogen content without correction for other constituents, as supplied by the Association of Public Analysts, for the corresponding firms' production. There is clearly a wider difference between the actual and observed meat contents for firm C than for firms A and B; we do not know the reason for this.

Difficulties in Evaluating Figures Obtained by Analysis

8. It will be seen from Table 1 that for the chicken soups A and B about half the non-meat nitrogen is derived from milk solids, and for C the proportion is about one-third. There are no well established and reliable methods for the direct estimation of milk protein in mixtures such as chicken soups but it would be practicable to estimate the proportion of lactose and from this to estimate the amount of milk protein with which this would be associated. The estimate of nitrogen contributed by milk solids obtained in this way would necessarily be approximate. The lactose to milk protein ratio is not strictly constant and a value would normally be chosen which resulted in an understatement of milk protein rather than the reverse. The estimation of calcium content may also be used as an indirect measure of milk solids. Systems of estimating the proportion of an ingredient in this way cannot be regarded as completely satisfactory for enforcement purposes.

9. Even if the milk nitrogen could be measured accurately and excluded from consideration, the actual meat nitrogen in the remainder would amount to only 74%, 51% and 41% respectively for samples A, B and C, so that the proportion of non-meat nitrogen (other than milk nitrogen) may still be equal to or greater than the amount of nitrogen from chicken meat.

10. The analytical position regarding other non-meat constituents which contain nitrogen is even less satisfactory. Although it is possible to distinguish analytically sodium glutamate, yeast extract, wheat flour protein, etc. from lean meat, this would require much more complicated analytical procedures and these would not be appropriate to routine use for control or enforcement purposes. Moreover, additional uncertainties in the interpretation of the analytical results would be introduced with *each* additional factor entering into the analysis so that the net lean meat content eventually calculated would be subject to wide limits of error, again making the procedure of limited value for enforcement purposes.

Meat Soups

11. Meat soups other than chicken soup do not contain milk solids. The non-meat constituents include hydrolysed protein, monosodium glutamate, tomato, onion pulp, yeast extract, cornflour, wheat flour, rusk, vegetable extract, etc. none of which can be estimated by normal analytical methods. Table 2 shows that the non-meat constituents may contribute almost as much to the total nitrogen figure as the lean-meat content itself; for this reason, an estimation of lean-meat content based on total nitrogen content can lead to a result some 70% higher than the actual lean meat content.

Table 2—Other Meat Soups

	<i>Beef Soups</i>		<i>Oxtail Soups</i>
	A	C	B
	%	%	%
Actual meat (a)	6.5	6.0	6.2
Nitrogen derived from actual meat	0.232	0.214	0.220
Nitrogen from other ingredients	0.169	0.126	0.173
Total nitrogen from recipe	0.401	0.340	0.393
Proportion of nitrogen contributed by lean meat	58.0	63.0	56.0
Non-meat nitrogen calculated as raw lean meat	4.7	3.5	4.9
Apparent lean raw meat content from total recipe nitrogen	11.2	9.5	11.1
(a) raw, lean, fat-free			

Can to Can Variation

12. A further difficulty, also in part associated with the relatively low meat content of meat soups as compared with other meat products such as sausages, meat pastes, etc., arises in sampling soups in which the lean meat may be present as small pieces which may not be evenly distributed throughout the product. The difficulty of ensuring an even distribution of small pieces of chicken meat throughout all the cans of chicken soup has been emphasised in all the evidence from the trade. It has now been represented to us that there is also some difficulty in ensuring even distribution of meat in other meat soups.

13. The sum total of all of these uncertainties is illustrated in Table 3 which gives the ranges and mean values for nitrogen contents as determined by analysis, and the mean apparent total lean meat contents calculated therefrom, as determined analytically from day to day during the course of ordinary commercial production of chicken, oxtail and beef soups. These figures were samples taken at random from one day's production over periods extending to some six or nine months during which time the recipes did not change. They include variations due to factory performance and to actual nitrogen content of the ingredients.

Table 3—Production Protein Analyses of Soups

	<i>Chicken</i>	<i>Oxtail</i>	<i>Beef</i>
No. of Samples	33	58	48
Range of total nitrogen content	0.107 to 0.280	0.200 to 0.522	0.264 to 0.614
Mean total nitrogen content	0.168	0.368	0.389
Standard deviation	0.042	0.051	0.067
Coefficient of variation	25.0	13.9	17.2
Mean apparent total lean meat content	4.55%	10.4%	10.9%
Limits (95% confidence)	2.3-6.8	7.5-13.3	7.1-14.7
(99% confidence)	1.6-7.5	6.7-14.2	6.0-15.8

From the limit figures given it will be seen that over the production period concerned there is on average 1 chance in 20 that a can of chicken soup will on analysis be found to have a meat content outside the range 2.3% to 6.8%; and 1 chance in 100 that it will be outside the range 1.6% to 7.5%.